



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/528,961

03/22/2005

Katsura Hirai

05170/HG

9075

1933 7590 11/26/2008  
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC  
220 Fifth Avenue  
16TH Floor  
NEW YORK, NY 10001-7708

EXAMINER

ULLAH, ELIAS

ART UNIT

PAPER NUMBER

2892

MAIL DATE

DELIVERY MODE

11/26/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                       |  |
|------------------------------|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/528,961 | <b>Applicant(s)</b><br>HIRAI, KATSURA |  |
|                              | <b>Examiner</b><br>ELIAS ULLAH       | <b>Art Unit</b><br>2892               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 29-51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

This office action is in response to an amendment filed on 7/17/2008.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 29-35, 43-46, 48-49, 51 are rejected under 35 U.S.C. 102(e) as being anticipated by Kim et al.(Pub. No.: US 2003/0099874).

As to claim 29, Kim et al. shows a method for manufacturing an electrical circuit comprising a step of forming at least a part of the electrical circuit by imperganating a conductive polymer [0039] (Fig. 1 and related text) exhibiting p-type [0043-0046] conduction or n-type conduction [0043-0046] (conductive particles with Boron and Phosphorous exhibit p-type and n-type conduction see in [0043]) in a receptive layer [0047] (porous support or micro channels is used a receptive layer).

With regard to claim 30 Kim shows impregnating a solution [0040] or a dispersed [0040] liquid containing the conductive polymer [0040] in the receptive layer (see claim 29 discussion); and forming the part of the electrical circuit by evaporating [0049] (at the temperature of 80-120 degrees solution to evaporate) a solvent of a solution contains

the conductive polymer or a dispersant of a dispersed liquid contains the conductive layer [0040].

With regard to claims 31-33, Kim shows the solvent of the solution containing the conductive polymer or the dispersant of the dispersed liquid containing the conductive polymer contains 30% or more [0046] of water and 5 to 70 % by weight of water soluble organic solvent and 10 to 30 % by weight of a water soluble organic solvent [0044-0051].

With regard to claim 34, Kim shows the solution liquid containing the conductive polymer has .001 to 1% by weight of a surfactant [0040] and the surfactant is a non-ionic surfactant [0040].

With regard to claims 43-44, Kim shows an electrical conductivity of conductive polymer is 0.01S/cm or more or 1S/cm or more (Fig. 3-4).

With regard to claims 45-46, Kim shows the receptive layer is porous and contains inorganic particles (Abstract).

With regard to claims 48-49, Kim shows the average particle diameter of the inorganic particles is .003 to .2 um [0051].

With regard to claim Kim shows the substrate is a polymer [0038] (polymer membrane is a substrate).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2892

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Fukushima et al. (Fukushima, US 2001/0044177).

With regard to claims 36-39, Kim teaches the conductive polymer [0040] on to the receptive layer (porous support or micro channels is used a receptive layer), and conductive polymer impregnated in the receptive layer is control by controlling an amount of the conductive polymer per unit area (Fig. 3).

But Kim specifically fails to teach ejecting the conductive polymer onto the receptive layer by an ink-jet printing method.

However, Fukushima teaches ejecting the conductive polymer onto the receptive layer by ink-jet printing [0024]. At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use “ejecting the conductive polymer onto the receptive layer by ink-jet printing” teaching of Fukushima in the method for manufacturing an electrical circuit of Kim, because ejecting the conductive polymer onto receptive layer by ink jet printing causes to polymer doted solution and polymer doted solution helps to form immeasurable number of sensors for a electronic circuit as taught by Fukushima in [0024].

Claims 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Hannah (Hannah, US 6,767,731).

With regard to claims 40-42, Kim teaches polymer contains a dopant [0042-0043].

But Kim fails to teach the conductive polymer is oligomer having a repeat number of 4 to 19 or a polymer a repeat number of 20 or more; and conductive polymer has a repeat unit of thiophene, vinylene or a substitute compound thereof.

However, Hannah teaches the conductive polymer is oligomer having a repeat number of 4 to 19 or a polymer a repeat number of 20 or more; and conductive polymer has a repeat unit of thiophene, vinylene or a substitute compound thereof (col. 9, lines 14-29). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use “ the conductive polymer having a different repeat number and repeat unit” teaching of Hannah in the method for manufacturing an electrical circuit of Kim, because a conductive polymer with repeat number and unit are able to make alternating bonds and an alternating bonds provides a pathway for free electron charge carriers for a electronic circuit as taught by Hannah in (col. 9, lines 14-29).

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Namiki (Namiki, US 5,641,559).

With regard to claim 47, Kim fails to teach the inorganic particles rare silica particles prepared by a vapor deposition.

However, Namiki teaches silica particles prepared by a vapor deposition method (col. 4, lines 16-21). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use “inorganic particles prepared by a vapor deposition” teaching of Namiki in the method for manufacturing an electrical circuit of Kim, because prepared inorganic particles by vapor deposition is a conventional method

of preparing a inorganic particles for a electronic circuit as taught by Namiki in (col. 4, lines 14-45).

Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim.

With regard to claim 50, Kim fails to teach hydrophilic binder and a weight ratio of the inorganic particle is between 2:1 and 20:1.

However, differences in processing parameters or concentration or temperature or ratio will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ratio or temperature is critical. Where there general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation see MPEP 2144.05.

### ***Response to Arguments***

3. Applicant's arguments filed 7/17/2008 have been fully considered but they are not persuasive. With respect to Kim reference, Applicant asserts that, Kim's phosphoric acid formula (2) or salts are not able to exhibiting p-type or n-type conduction, however Examiner respectfully disagree and an ionic conductive polymer disclosed by Kim [0049] inherently exhibit p-type or n-type conduction since ionic conductive polymer included either boron or phosphorous.

### ***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS ULLAH whose telephone number is (571)272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Elias Ullah/

/Thao X Le/



Application/Control Number: 10/528,961  
Art Unit: 2892

Page 8

Examiner, Art Unit 2892

Supervisory Patent Examiner, Art  
Unit 2892